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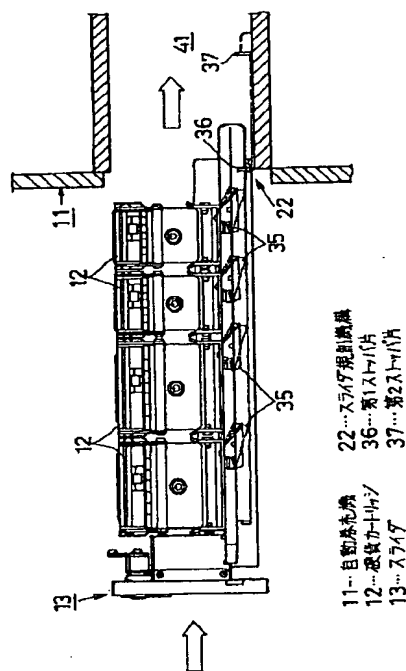
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(54)【発明の名称】 硬貨収納構造および硬貨処理装置

(57)【要約】

【目的】この発明は、硬貨収納箱の装着に際して、この硬貨収納箱の硬貨受入口が開口している時だけ装置本体に装着許容することにより、硬貨受入口の開閉管理性能と硬貨収納箱の着脱性能を高めた硬貨収納構造および硬貨処理装置の提供を目的とする。

【構成】この発明は、装置本体と、該装置本体に対しスライド移動して装着する箱体の装着時には装置本体からの硬貨を受入可能に開口し、離脱時にはシャッターで閉鎖する硬貨受入口を備えた硬貨収納箱とからなり、装置本体には収納箱装着時のスライド移動を規制する規制手段を備え、硬貨収納箱には硬貨受入口の開動作に連動して上記規制手段の規制動作を解除する解除手段を備えた硬貨収納構造であることを特徴とする。



【特許請求の範囲】

【請求項 1】装置本体と、該装置本体に対しスライド移動して装着する箱体の装着時には装置本体からの硬貨を受入可能に開口し、離脱時にはシャッタで閉鎖する硬貨受入口を備えた硬貨収納箱とからなり、上記装置本体には収納箱装着時のスライド移動を規制する規制手段を備え、上記収納箱には硬貨受入口の開動作に連動して上記規制手段の規制動作を解除する解除手段を備えた硬貨収納構造。

【請求項 2】装置本体と、該装置本体に対しスライド移動して着脱されるスライダに搭載され、このスライダの装着時には装置本体からの硬貨を受入可能に開口し、離脱時にはシャッタで閉鎖する硬貨受入口を備えた硬貨収納箱とからなり、上記装置本体にはスライダ装着時のスライド移動を規制するスライダ規制手段を備え、上記収納箱には硬貨受入口の開動作に連動して上記スライダ規制手段の規制動作を解除する解除手段を備えた硬貨収納構造。

【請求項 3】収納箱の硬貨受入口を覆うシャッタを閉鎖方向に付勢支持する付勢手段と、上記付勢手段の付勢力に抗してシャッタを開位置に保持する保持手段と、上記保持手段の保持状態を、収納箱装着方向のスライド時には同保持状態で待機し、収納箱離脱方向のスライド時には保持解除する保持解除手段を備えた請求項 1 または 2 記載の硬貨収納構造。

【請求項 4】請求項 1、2 または 3 記載の硬貨収納構造を備えた硬貨処理装置であって、硬貨収納箱のスライド移動時に、該硬貨収納箱の規制手段と対応して位置規制する位置規制手段を備えた硬貨処理装置。

【請求項 5】請求項 3 または 4 記載の硬貨収納構造を備えた硬貨処理装置であって、硬貨収納箱を装置本体より引出し方向にスライド動作させるスライド動作に連動してシャッタを開動作する閉鎖手段を備えた硬貨処理装置。

【請求項 6】閉鎖手段は、規制手段と対応して位置規制する第 2 の位置規制手段を備えた請求項 5 記載の硬貨処理装置。

【発明の詳細な説明】

【0001】

【産業上の利用分野】この発明は、例えば自動販売機に着脱される硬貨カートリッジのような硬貨収納箱に関し、さらに詳しくは硬貨収納箱を着脱操作する時の開閉管理性能を高めた硬貨収納構造および硬貨処理装置に関する。

【0002】

【従来の技術】一般に、自動販売機等の装置本体に装着されて硬貨を回収する硬貨収納箱は、装置本体の背面側よりスライド式に出入れして着脱する着脱構造を有しており、装着セットした状態では装置本体から落下放出される硬貨を受入可能に硬貨受入口を開口し、離脱した単

独の取扱い状態では硬貨受入口をシャッタで閉鎖している。

【0003】このとき、係員が誤って硬貨受入口を閉じた状態で硬貨収納箱を装置本体に装着すると、装置本体から落下放出される硬貨がシャッタ上に堆積することになり、これが故障の発生原因となる。このため、硬貨収納箱の装着操作に連動して硬貨受入口を開口する装置が提供されている。

【0004】例えば、図 13 に示すように、装置本体 131 の装着位置には装着方向に向けて水平に長く突き出た長尺ピン 132 を突設し、硬貨収納箱 133 の装着対応面には該ピンを挿通許容する挿通孔 134 を開口して、装着時に長尺ピン 132 が挿通孔 134 に対応して挿通することで、シャッタ 135 を開操作して硬貨受入口 136 を自動的に開口するようにしている。

【0005】この場合、係員は硬貨収納箱を装着したとき、内部で硬貨受入口が開口しているか否かを確認できないため、一旦装着した硬貨収納箱を再び引出して開口状態を確認するなど信頼性が低くなっていた。また、装置本体から硬貨収納箱を引出す際に、この引出し操作に連動してシャッタを閉じ、内部に収納した硬貨を防犯管理する装置が開示されている（例えば実公昭 63-27252 号参照）。

【0006】しかし、この場合は硬貨収納箱の装着方向と、シャッタの開閉方向が異なった場合に、シャッタを連動させて開口できない問題を有していた。

【0007】

【発明が解決しようとする課題】そこでこの発明は、硬貨収納箱の装着に際して、この硬貨収納箱の硬貨受入口が開口している時だけ装置本体に装着できるようにして、硬貨受入口の開閉管理性能と硬貨収納箱の着脱性能を高めた硬貨収納構造および硬貨処理装置の提供を目的とする。

【0008】

【課題を解決するための手段】請求項 1 記載の発明は、装置本体と、該装置本体に対しスライド移動して装着する箱体の装着時には装置本体からの硬貨を受入可能に開口し、離脱時にはシャッタで閉鎖する硬貨受入口を備えた硬貨収納箱とからなり、装置本体には収納箱装着時のスライド移動を規制する規制手段を備え、硬貨収納箱には硬貨受入口の開動作に連動して上記規制手段の規制動作を解除する解除手段を備えた硬貨収納構造であることを特徴とする。

【0009】請求項 2 記載の発明は、装置本体と、該装置本体に対しスライド移動して着脱されるスライダに搭載され、このスライダの装着時には装置本体からの硬貨を受入可能に開口し、離脱時にはシャッタで閉鎖する硬貨受入口を備えた硬貨収納箱とからなり、装置本体にはスライダ装着時のスライド移動を規制するスライダ規制手段を備え、硬貨収納箱には硬貨受入口の開動作に連動

して上記スライド規制手段の規制動作を解除する解除手段を備えた硬貨収納構造であることを特徴とする。

【0010】請求項3記載の発明は、収納箱の硬貨受入口を覆うシャッタを閉鎖方向に付勢支持する付勢手段と、この付勢手段の付勢力に抗してシャッタを開位置に保持する保持手段と、この保持手段の保持状態を、収納箱装着方向のスライド時には同保持状態で待機し、収納箱離脱方向のスライド時には保持解除する保持解除手段を備えた硬貨収納構造であることを特徴とする。

【0011】請求項4記載の発明は、硬貨収納構造を備えた硬貨処理装置であって、硬貨収納箱のスライド移動時に、該硬貨収納箱の規制手段と対応して位置規制する位置規制手段を備えたことを特徴とする。

【0012】請求項5記載の発明は、硬貨収納構造を備えた硬貨処理装置であって、硬貨収納箱を装置本体より引出し方向にスライド動作させるスライド動作に連動してシャッタを開動作する閉鎖手段を備えたことを特徴とする。

【0013】請求項6記載の発明は、規制手段と対応して位置規制する第2の位置規制手段を有する閉鎖手段を備えた硬貨処理装置であることを特徴とする。

【0014】

【作用】この発明によれば、硬貨収納箱を装置本体に装着する時、硬貨収納箱の硬貨受入口が開いていれば、解除手段が規制手段のスライド規制動作を解除して装着方向のスライド移動を許容して、開状態で装着させる。これに対し、装着時に硬貨受入口が閉じていれば、解除手段は規制手段のスライド規制動作を解除しないため、装着操作を規制して硬貨収納箱の誤装着を防止する。

【0015】また、硬貨収納箱をスライダに搭載して装置本体に装着する時、硬貨収納箱の硬貨受入口が開いていれば、解除手段がスライダ規制手段のスライド規制動作を解除して装着方向のスライド移動を許容して、開状態で装着させる。これに対し、装着時に硬貨受入口が閉じていれば、解除手段はスライダ規制手段のスライド規制動作を解除しないため、装着操作を規制してスライダを用いた硬貨収納箱の誤装着を防止する。

【0016】また、硬貨収納箱を装着する時は、シャッタの開位置を保持手段が保持して硬貨受入口を開状態で装着させる。これに対し、離脱方向のスライド時には保持解除手段がシャッタの開位置を保持解除して硬貨受入口を開動作し、この閉状態で硬貨収納箱を装置本体より離脱する。

【0017】また、硬貨収納箱を装着する時、この装着方向のスライド移動時に硬貨収納箱の規制手段が位置規制手段と対応して位置規制される。

【0018】また、硬貨収納箱を装置本体より引出し方向にスライド動作させて離脱する時、このスライド動作に連動して閉鎖手段がシャッタを閉じて硬貨受入口を閉鎖する。

【0019】また、硬貨収納箱を若干引出した引出し状態より再び装着操作しようとしても、硬貨収納箱の規制手段が第2の位置規制手段を有する閉鎖手段と対応して位置規制される。

【0020】

【発明の効果】このように、硬貨収納箱はシャッタを開けていないと装置本体に装着できない構造のため、硬貨受入口が開いた状態のときだけ装着されることになり、閉鎖しているときは装着規制する。このため、硬貨収納箱の誤装着を完全に解消することができる。また、装着完了後は硬貨受入口が開口対応して装置本体からの硬貨を確実に収納するため、常に安定した収納性能が得られ、シャッタ閉による故障の発生を解消して着脱信頼性の向上および係員操作の操作負担を軽減することができる。

【0021】また、硬貨収納箱の複数個をスライダ上に搭載して一括して着脱操作する場合も、同様に硬貨受入口を開口させてスライダ上に搭載しなければ装置本体に装着できないため、閉鎖状態での装着を防止することができる。

【0022】さらに、硬貨収納箱やスライダの装着時には、硬貨受入口を開口保持し、逆に離脱時には硬貨受入口を自動的に閉じるため、装着時や装着後は不測に閉鎖動作せず、また離脱した単独状態で取扱われる硬貨収納箱は閉鎖された状態にあって防犯管理される。

【0023】このように、硬貨収納箱の装着時には硬貨受入口の開閉状態を機械的に確認でき、この確認結果に基づいて装着許可／装着規制するため、硬貨収納箱のスライド方向とシャッタの開閉方向とが異なっているも、硬貨受入口を的確に開閉管理して装着することができる。

【0024】また、硬貨収納箱の引出し毎に、これに連動して硬貨受入口を閉鎖するため、硬貨収納箱を若干引出した後に、元に戻すような装着し直した場合、引出した段階で直ちにシャッタが閉まって再装着操作を規制するため、装着時に硬貨受入口が不測に閉鎖されることがなくなる。

【0025】

【実施例】この発明の一実施例を以下図面に基づいて詳述する。図1および図2は自動券売機11に着脱される硬貨カートリッジ12を示し、この硬貨カートリッジ12は例えば金種別の4個をスライダ13上に搭載して自動券売機11の背面側よりスライド式に出入れ操作して着脱するものであって、自動券売時に受付けた硬貨を内部の硬貨処理装置14で受け付け処理し、このとき回収すべき硬貨を硬貨処理装置14から放出して金種別に対応する各硬貨カートリッジ12…に収納するように構成している。

【0026】図3～図6は硬貨カートリッジ12を示し、この硬貨カートリッジ12は横長の箱形状に形成さ

れ、上面にはシャッタ15で開閉可能な硬貨受入口16を有し、この硬貨受入口16を介して上方の硬貨処理装置14から放出される硬貨を受入れ、この受入れた硬貨はその内方空間部の硬貨収納部17へと取込んで収納する。また、収納した硬貨はカートリッジ短手方向の一側面に配設した放出扉18の開放時に開口する硬貨放出口19から外方に一括放出可能に設けている。

【0027】ところで、硬貨カートリッジ12を自動券売機11に装着したとき、上方の硬貨処理装置14から下方の硬貨カートリッジ12に落下放出して硬貨を収納させるため、この硬貨カートリッジ12の硬貨受入口16を装着状態では開口し、離脱状態では閉鎖するように開閉管理している。

【0028】この硬貨受入口16を開閉管理する硬貨収納構造は、シャッタ保持機構20と、シャッタ保持解除機構21と、スライダ規制機構22と、スライダ解除機構23とを組合わせて構成している。

【0029】先ず、シャッタ保持機構20は、図7～図9に示すように、シャッタ15の裏面に固定したフック板24と、これに対応してカートリッジ本体25側に配設した第1傾動レバー26とを備え、シャッタ15が摺動して開位置に移動した時、これと一体のフック板24に第1傾動レバー26が係合対応して硬貨受入口16の開状態を保持するものであって、この第1傾動レバー26はレバー中間部をカートリッジ本体25の枢支ピン27に枢着し、この枢支ピン27を傾動支点到にレバー先端側の係合起立片28とレバー基端側の係合垂片29を傾動許容している。通常、該レバー26は枢支ピン27に取付けた復帰バネ30の復帰作用によって、該レバー26をシャッタ開閉方向に沿った初期位置に待機させ、この初期待機状態でシャッタ15を開方向にスライド移動したとき、図8に示すように、フック板24がレバー先端側の係合起立片28に係合対応してシャッタ15は開位置で保持される。また、レバー基端側の係合垂片29が後述するシャッタ保持解除機構21の第2傾動レバーに係合対応して保持解除がなされる。

【0030】上述のシャッタ保持解除機構21は、第2傾動レバー31と、解除ガイド板32と、シャッタ復帰バネ33とから構成され、第2傾動レバー31は既述した枢支ピン27にレバー基端部を枢着し、この枢支ピン27を傾動支点到にレバー先端側を傾動許容し、通常は枢支ピン27に取付けた復帰バネ30の復帰作用によって、該レバー31を第1傾動レバー26と平行する初期位置に待機させ、この待機状態で硬貨カートリッジ12を装着方向にスライド移動したとき、該レバー31の先端が自動券売機11の装着対応位置に固定設置された解除ガイド板32に接触対応して傾動される。

【0031】このとき、図8に示すように、硬貨カートリッジ12の第2傾動レバー31が自動券売機11の解除ガイド板32に接触対応しても、装着方向のスライド

移動時は、枢支ピン27を傾動支点到に傾動退避してフック板24と第1傾動レバー26との係合状態を保持し、硬貨受入口16を開状態で装着させる。

【0032】これに対し、図9に示すように、離脱方向のスライド移動時は、第2傾動レバー31が解除ガイド板32に接触対応すると、枢支ピン27を傾動支点到に傾動退避してスライド許容し、この傾動時に該レバー31の基端側が既述した係合垂片29を介して第1傾動レバー26と係合対応し、これにより第1傾動レバー26を傾動させて、第1傾動レバー26をフック板24より離脱し、この離脱動作に伴ってシャッタ15はシャッタ復帰バネ33の復帰作用を受けて硬貨受入口16を閉鎖する。また、第2傾動レバー31の先端部には円滑な係合作用を得るための対応ローラ34を取付けている。

【0033】スライダ規制機構22は、図10～図12に示すように、スライダ13に金種別の4個の硬貨カートリッジ12…を搭載したとき、その搭載位置の各下面対応位置のスライダ13にストッパレバー35…を取付け、これらのストッパレバー35…と係止対応する自動券売機11の装着位置に第1ストッパ片36と、第2ストッパ片37とを配設して構成される。

【0034】上述のストッパレバー35は、スライダ13の着脱方向と直角に軸支した支点ピン38に該レバー35の中間部を枢着し、この枢支ピン38を傾動支点到にレバー先端側の係合凸部39と、レバー後端側の係止凹部40とを一体的に傾動許容し、通常は図示しないストッパ用のバネによって係合凸部39が上動傾斜し、係止凹部40が下動傾斜した状態に待機されている。この傾斜状態ではスライダ装着位置41の底面前後位置に配設された第1ストッパ片36と、第2ストッパ片37に該レバー35…の係止凹部40が係止対応して装着方向のスライダ移動が規制される。

【0035】一方、スライダ解除機構23は、シャッタ15の裏面に固定したガイド板42と、これと対応するカートリッジ本体25側に配設した昇降レバー43とから構成され、シャッタ15が開位置にスライド移動した時、これと一体のガイド板42が昇降レバー43の上部に取付けた上部ローラ44と対応して若干押し下げ、この押し下げられた昇降レバー43の下端折曲部45が、既述したストッパレバー35の係合凸部39を押し下げることになり、この押し下げ動作に伴ってストッパレバー35は略水平状態に保持され、このときレバー35の係止凹部40が各ストッパ片36、37と係止回避された上動位置となる。

【0036】このように、シャッタ15が閉鎖状態ではスライダ規制機構22の規制作用が働いてスライダ13の装着動作を規制し、これに対しシャッタ15が開操作されて硬貨受入口16が開状態になったときは、これに連動してスライダ解除機構23の解除作用が働いて、スライダ13は自動券売機11に装着許容される。

【0037】また、スライダ装着位置41に第1ストップ片36だけでなく、第2ストップ片37を設けることにより、硬貨カートリッジ装着規制時のストップ性能を高めている。これは例えば、硬貨カートリッジ12の引出し毎に、この引出し動作に連動してシャッタ15が硬貨受入口16を閉鎖するため、硬貨カートリッジ12を若干引出した後に、元に戻すような装着し直した場合、若干引出した段階で直ちにシャッタ15が閉まり、不適な2段階引出し操作時の場合にストップパレバー35が第2ストップ片37に対応してスライド規制される。図中、46は回動取手、47は固定取手、48は扉開閉キー、49は放出ガイド板である。

【0038】このように構成された硬貨カートリッジ12の着脱動作を次に説明する。今、係員が金種別の硬貨カートリッジ12…を自動券売機11に装着する時、先ず自動券売機11よりスライダ13を引出し、この引出したスライダ13上に4個の硬貨カートリッジ12…を搭載し、続いて各カートリッジ12…のシャッタ15を開操作して硬貨受入口16を開口する。

【0039】この開口状態でスライダ13を自動券売機11に装着操作する。このとき、各硬貨カートリッジ12…の硬貨受入口16が全て開いていれば、スライダ解除機構23がスライダ規制機構22のスライド規制動作を解除して、装着方向のスライド移動を許容する。

【0040】このとき、仮に係員が硬貨受入口16を閉鎖したままの誤操作によって、硬貨受入口16を閉じたまま装着操作した場合は、スライダ解除機構23がスライダ規制機構22のスライド規制動作を解除しないため、装着操作を規制して硬貨カートリッジ12…の誤装着を防止する。

【0041】一方、硬貨カートリッジ12…の引出し時は、硬貨受入口16が開口状態にあるためスライダ規制機構22のスライダ規制作用が働かないため、各硬貨カートリッジ12…はスライダ13毎引出して何時でも円滑に取出し許容できる。

【0042】上述のように、硬貨カートリッジはシャッタを開けていないと自動券売機に装着できない構造のため、硬貨受入口が開いた硬貨収納許容状態のときだけ装着されることになり、閉鎖しているときは装着規制する。このため、硬貨カートリッジの誤装着を完全に解消することができ、また装着完了後は硬貨受入口が開口対応して自動券売機からの硬貨を確実に収納するため、常に安定した収納性能が得られ、シャッタ閉による故障の発生を解消して着脱信頼性の向上および係員の操作負担を軽減することができる。

【0043】また、硬貨カートリッジの4個をスライダ上に搭載して一括して着脱操作する場合も、同様に硬貨受入口を開口させていなければ自動券売機に装着できないため、閉鎖時の誤装着を防止することができる。

【0044】さらに、装着時には硬貨受入口を開口保持

し、逆に離脱時には硬貨受入口を自動的に閉じるため、装着時や装着後は不測に閉鎖動作せず、また離脱した単独状態で取扱われる硬貨カートリッジは閉鎖された状態で防犯管理される。

【0045】このように、硬貨カートリッジの装着時には硬貨受入口の開閉状態を機械的に確認でき、この確認結果に基づいて装着許容／装着規制するため、硬貨カートリッジのスライド方向とシャッタの開閉方向とが異なっているにもかかわらず、硬貨受入口を的確に開閉管理して装着することができる。また、硬貨カートリッジの引出し毎に、これに連動して硬貨受入口を閉鎖するため、硬貨カートリッジを若干引出した後に、元に戻すような装着し直した場合、引出した段階で直ちにシャッタが閉まって再装着操作を規制するため、装着時に硬貨受入口が不測に閉鎖されることがなくなる。

【0046】この発明と、上述の一実施例の構成との対応において、この発明の装置本体は、実施例の自動券売機11に対応し、以下同様に、硬貨収納箱は、硬貨カートリッジ12に対応し、規制手段およびスライダ規制手段は、スライダ規制機構22に対応し、解除手段は、スライダ解除機構23に対応し、保持手段は、シャッタ保持機構20に対応し、保持解除手段は、シャッタ保持解除機構21に対応し、付勢手段および閉鎖手段は、シャッタ復帰バネ33に対応し、位置規制手段は、第1ストップ片36に対応し、第2の位置規制手段は、第2ストップ片37に対応するも、この発明は、上述の一実施例の構成のみに限定されるものではない。

【図面の簡単な説明】

【図1】この発明の硬貨カートリッジの着脱状態を示す自動券売機の概略側面図。

【図2】この発明の硬貨カートリッジを装着した自動券売機の背面図。

【図3】この発明の硬貨カートリッジの平面図。

【図4】この発明の硬貨カートリッジの内部構造を示す平面図。

【図5】この発明の硬貨カートリッジの内部構造を示す側面図。

【図6】この発明の硬貨カートリッジの正面図。

【図7】この発明のシャッタの開動作状態を示す一部破断平面図。

【図8】この発明のシャッタの開保持状態を示す一部破断平面図。

【図9】この発明のシャッタの保持解除状態を示す一部破断平面図。

【図10】この発明の硬貨カートリッジを4個搭載したスライダの平面図。

【図11】この発明の硬貨カートリッジを4個搭載したスライダの正面図。

【図12】この発明のスライダ規制機構の使用状態を示す要部拡大側面図。

【図13】従来の硬貨収納箱の装着構造の一例を示す斜視図。

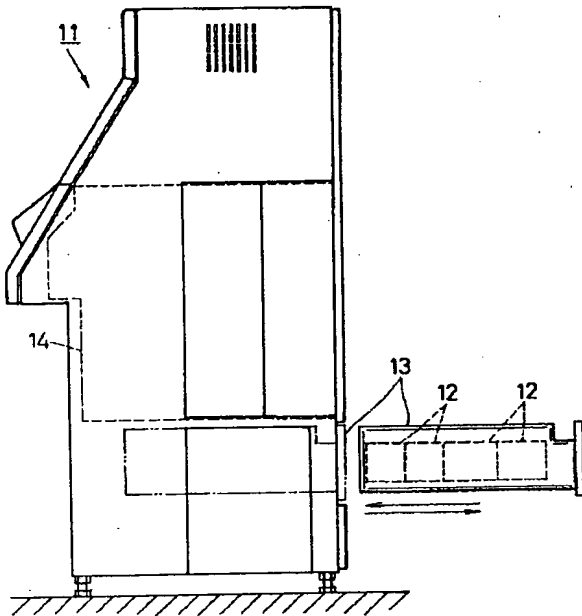
【符号の説明】

- 11…自動券売機
12…硬貨カートリッジ
13…スライダ
14…硬貨処理装置
15…シャッタ

* 16…硬貨受入口

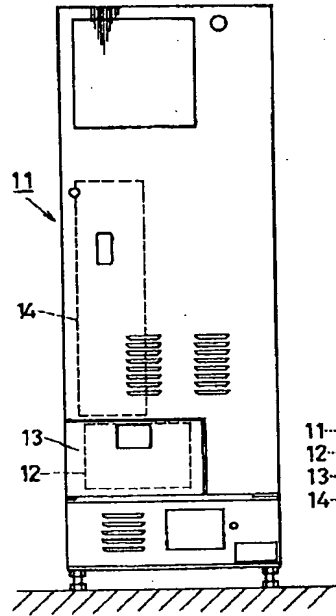
- 20…シャッタ保持機構
21…シャッタ保持解除機構
22…スライダ規制機構
23…スライダ解除機構
33…シャッタ復帰バネ
36…第1ストッパ片
* 37…第2ストッパ片

【図1】



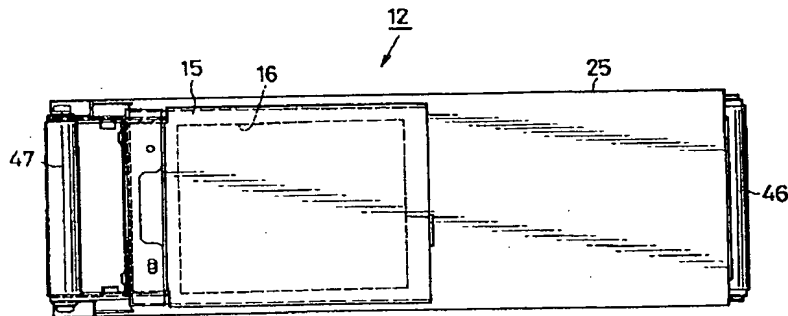
- 11…自動券売機 13…スライダ
12…硬貨カートリッジ 14…硬貨処理装置

【図2】



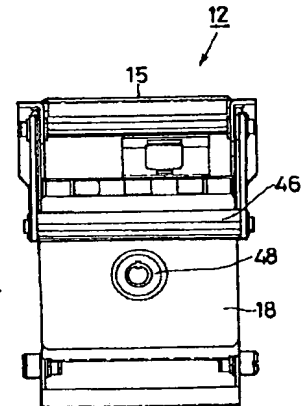
- 11…自動券売機
12…硬貨カートリッジ
13…スライダ
14…硬貨処理装置

【図3】



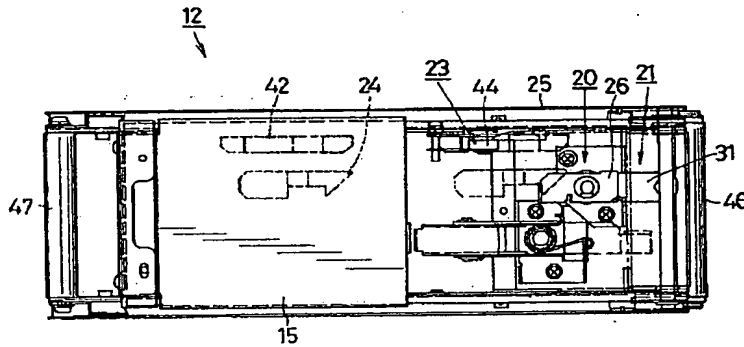
- 12…硬貨カートリッジ 16…硬貨受入口
15…シャッタ

【図6】



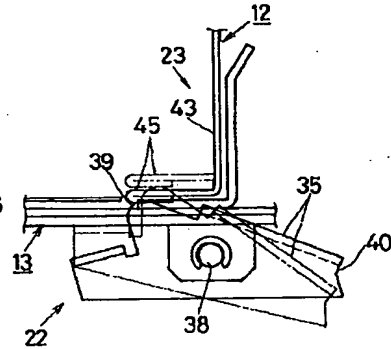
- 12…硬貨カートリッジ
15…シャッタ

【図 4】



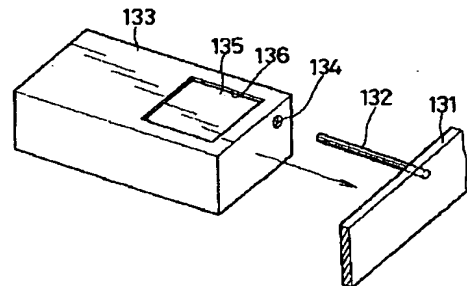
- 12…破貨カートリッジ 21…シャッター保持解除機構
15…シャッター 23…スライド解除機構
20…シャッター保持機構

【図 12】

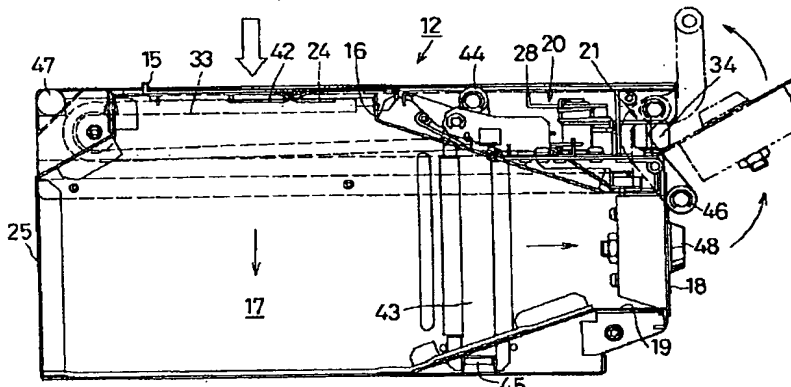


- 12…破貨カートリッジ 22…スライド規制機構
13…スライダ 23…スライド解除機構

【図 13】

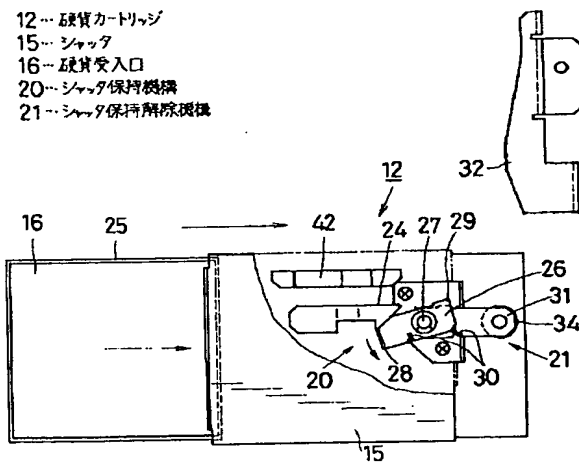


【図 5】



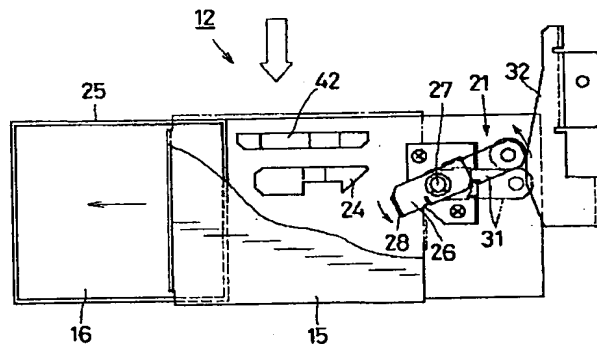
- 12…破貨カートリッジ 20…シャッター保持機構
15…シャッター 21…シャッター保持解除機構
16…破貨受入口 33…シャッター復帰バネ

【図 7】



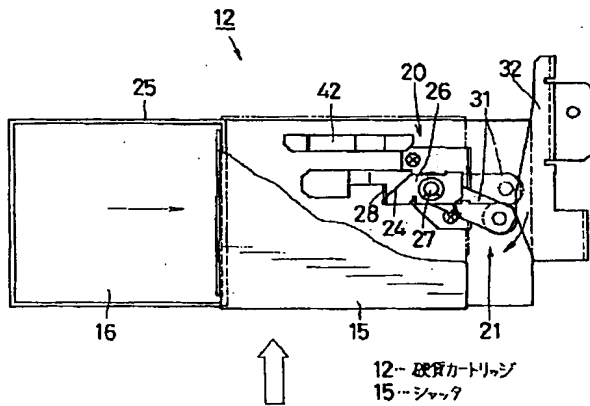
- 12…破貨カートリッジ
15…シャッター
16…破貨受入口
20…シャッター保持機構
21…シャッター保持解除機構

【図 9】



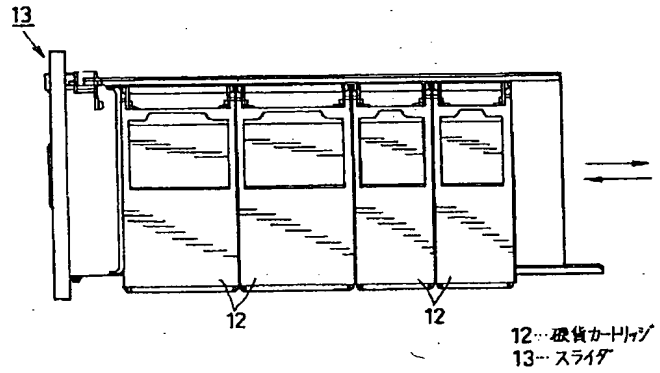
- 12…破貨カートリッジ 16…破貨受入口
15…シャッター 21…シャッター保持解除機構

【図8】



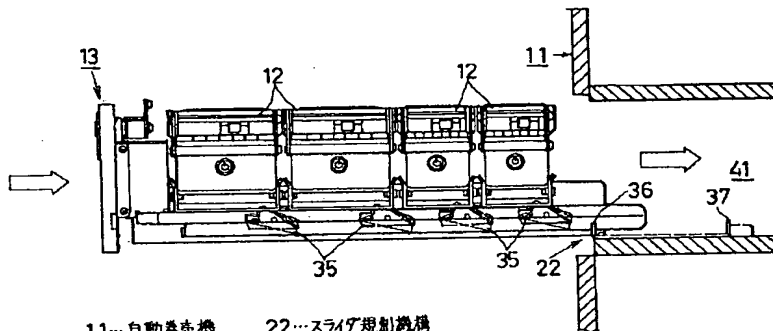
- 12…破貨カートリッジ
15…シャッター
16…破貨受入口
20…シャッター保持機構
21…シャッター保持解除機構

【図10】



- 12…破貨カートリッジ
13…スライダ

【図11】



- 11…自動巻機構
12…破貨カートリッジ
13…スライダ
22…スライダ規制機構
36…第1ストッパ片
37…第2ストッパ片

PATENT ABSTRACTS OF JAPAN

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(22)Date of filing : 28.06.1994 (72)Inventor : ASAI HIROAKI

(54) COIN STORAGE STRUCTURE AND COIN PROCESSOR

(57)Abstract:

PURPOSE: To load a coin storage box into the main body of a coin processor only when the coin reception port of the storage box is opened by providing a releasing means which releases the control operation of a slide shift control means in response to the opening action of the coin reception port of the coin storage box.

CONSTITUTION: A stopper lever 35 is attached to a slider 13 where a coin cartridge 12 is mounted. A slider cancel mechanism 23 consists of a guide plate 42 which is fixed onto the rear face of shutter 15 of a coin reception port 16 and a lift lever 43 which is placed at the side of a cartridge main body 25. When the shutter 15 is slid to its open position, the plate 42 pushes down an upper roller 44 attached at the upper position of the lever 34. Then the lower end bend part 45 of the lever 43 pushes down the engagement projection part 39 of the lever 35. Thus the lever 35 is held approximately in a horizontal state, and the lock recess part 40 of the lever 35 is set at an upward motion position where the lock of the part 40 is evaded against a stopper bar placed at the loading position of an automatic ticket issuing machine.

LEGAL STATUS [Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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2. **** shows the word which can not be translated.

3. In the drawings, any words are not translated.

CLAIMS

[Claim(s)]

[Claim 1] At the time of wearing of the body of equipment, and the box with which carry out slide migration and it equips to this body of equipment, opening of the acceptance of the coin from the body of equipment is made possible. The coin receipt structure where of consisted of a coin housing equipped with coin acceptance opening closed with a shutter at the time of balking, equipped the above-mentioned body of equipment with a regulation means regulate the slide migration at the time of housing wearing, and it had a discharge means interlock to open actuation of coin acceptance opening in the above-mentioned housing, and canceled regulation actuation of the above-mentioned regulation means.

[Claim 2] It is carried in the slider detached and attached by carrying out slide migration to the body of equipment, and this body of equipment. At the time of wearing of this slider, opening of the acceptance of the coin from the body of equipment is made possible. It consists of a coin housing equipped with coin acceptance opening closed with a shutter at the time of balking. Coin receipt structure which equipped the above-mentioned body of equipment with a slider regulation means to regulate the slide migration at the time of slider wearing,

and was equipped with a discharge means for the above-mentioned housing to be interlocked with at open actuation of coin acceptance opening, and to cancel regulation actuation of the above-mentioned slider regulation means.

[Claim 3] The coin receipt structure according to claim 1 or 2 stood by the maintenance condition of a maintenance means resist [shutter / wrap] the energization force of the energization means which carries out energization support in the closing direction, and the above-mentioned energization means in coin acceptance opening of a housing, and hold a shutter to an open position, and the above-mentioned maintenance means, in the state of the said maintenance at the time of the slide of the housing wearing direction, and had a maintenance discharge means carry out maintenance discharge, at the time of the slide of the housing balking direction.

[Claim 4] The coin processor equipped with the location regulation means which is the coin processor equipped with coin receipt structure according to claim 1, 2, or 3, and carries out location regulation corresponding to the regulation means of this coin housing at the time of slide migration of a coin housing.

[Claim 5] The coin processor equipped with a closing means for the slide actuation which it is [actuation] the coin processor equipped with coin receipt structure according to claim 3 or 4, and makes the slide actuation of the coin housing carry out in the direction of a cash drawer from the body of equipment to

be interlocked with, and to closed-operate a shutter.

[Claim 6] A closing means is the coin processor [equipped with the 2nd location regulation means which carries out location regulation corresponding to a regulation means] according to claim 5.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the coin receipt structure and the coin processor which raised the closing motion management engine performance when carrying out attachment-and-detachment actuation of the coin housing in more detail about a coin housing like the coin cartridge detached and attached by the automatic vending machine.

[0002]

[Description of the Prior Art] The coin housing with which bodies of equipment, such as an automatic vending machine, are equipped and which generally collects coins carried out opening of the coin acceptance opening, and coin acceptance opening has been closed down with a shutter in it in the state of the

independent handling from which it seceded possible [acceptance of the coin by which fall emission is carried out from the body of equipment where it has the attachment-and-detachment structure which takes in and out of a slide type from the tooth-back side of the body of equipment, and is detached and attached and a wearing set is carried out].

[0003] If an official in charge equips the body of equipment with a coin housing at this time where coin acceptance opening is closed accidentally, the coin by which fall emission is carried out from the body of equipment will accumulate on a shutter, and will cause [of this failure] generating. For this reason, the equipment which is interlocked with wearing actuation of a coin housing and carries out opening of the coin acceptance opening is offered.

[0004] For example, open actuation of the shutter 135 is carried out because carry out opening of the insertion hole 134 which protrudes the long picture pin 132 which projected horizontally and for a long time towards [as shown in drawing 13] the wearing direction in the stowed position of the body 131 of equipment, and carries out insertion permission of this pin in the field corresponding to wearing of the coin housing 133 and the long pin 132 inserts in corresponding to the insertion hole 134 at the time of wearing, and it is made to carry out opening in the coin acceptance opening 136 automatically.

[0005] In this case, since an official in charge was not able to check whether coin

acceptance opening is carrying out opening inside when it equips with a coin housing, the coin housing with which it once equipped was pulled out again, and dependability, such as checking an opening condition, was low. Moreover, in case a coin housing is pulled out from the body of equipment, this cash-drawer actuation is interlocked with, a shutter is closed, and the equipment which carries out crime prevention management of the coin contained inside is indicated (for example, refer to JP,63-27252,Y).

[0006] However, when the wearing direction of a coin housing differed from the closing motion direction of a shutter in this case, it had the problem which a shutter is interlocked and cannot carry out opening.

[0007]

[Problem(s) to be Solved by the Invention] Then, only while coin acceptance opening of this coin housing is carrying out opening of this invention, as the body of equipment can be equipped with it on the occasion of wearing of a coin housing, it aims at offer of the coin receipt structure which raised the closing motion management engine performance of coin acceptance opening, and the attachment-and-detachment engine performance of a coin housing, and a coin processor.

[0008]

[Means for Solving the Problem] At the time of wearing of the body of equipment,

and the box with which carry out slide migration and it equips to this body of equipment, opening of the acceptance of the coin from the body of equipment of invention according to claim 1 is made possible. It consists of a coin housing equipped with coin acceptance opening closed with a shutter at the time of balking. It is characterized by being the coin receipt structure which equipped the body of equipment with a regulation means to regulate the slide migration at the time of housing wearing, and was equipped with a discharge means for a coin housing to be interlocked with at open actuation of coin acceptance opening, and to cancel regulation actuation of the above-mentioned regulation means.

[0009] Invention according to claim 2 is carried in the slider detached and attached by carrying out slide migration to the body of equipment, and this body of equipment. At the time of wearing of this slider, opening of the acceptance of the coin from the body of equipment is made possible. It consists of a coin housing equipped with coin acceptance opening closed with a shutter at the time of balking. It is characterized by being the coin receipt structure which equipped the body of equipment with a slider regulation means to regulate the slide migration at the time of slider wearing, and was equipped with a discharge means for a coin housing to be interlocked with at open actuation of coin acceptance opening, and to cancel regulation actuation of the above-mentioned slider regulation means.

[0010] Invention according to claim 3 carries out that it is the coin receipt structure had a maintenance means resist [shutter / wrap] the energization force of the energization means which carries out energization support in the closing direction, and this energization means in coin acceptance opening of a housing, and hold a shutter to an open position, and a maintenance discharge means stand by the maintenance condition of this maintenance means in the state of the said maintenance at the time of the slide of the housing wearing direction, and carry out maintenance discharge at the time of the slide of the housing balking direction as the description.

[0011] Invention according to claim 4 is the coin processor equipped with coin receipt structure, and is characterized by having the location regulation means which carries out location regulation corresponding to the regulation means of this coin housing at the time of slide migration of a coin housing.

[0012] Invention according to claim 5 is the coin processor equipped with coin receipt structure, and is characterized by having a closing means for the slide actuation which makes the slide actuation of the coin housing carry out in the direction of a cash drawer from the body of equipment to be interlocked with, and to closed-operate a shutter.

[0013] Invention according to claim 6 is characterized by being the coin processor equipped with a closing means to have the 2nd location regulation

means which carries out location regulation corresponding to a regulation means.

[0014]

[Function] If coin acceptance opening of a coin housing is open when equipping the body of equipment with a coin housing according to this invention, a discharge means will cancel slide regulation actuation of a regulation means, will permit slide migration of the wearing direction, and will make it equip in the state of open. On the other hand, if coin acceptance opening has closed at the time of wearing, in order that a discharge means may not cancel slide regulation actuation of a regulation means, it will regulate wearing actuation and will prevent incorrect wearing of a coin housing.

[0015] Moreover, if coin acceptance opening of a coin housing is open when a coin housing is carried in a slider and the body of equipment is equipped, a discharge means will cancel slide regulation actuation of a slider regulation means, will permit slide migration of the wearing direction, and will make it equip in the state of open. On the other hand, if coin acceptance opening has closed at the time of wearing, in order that a discharge means may not cancel slide regulation actuation of a slider regulation means, it will regulate wearing actuation and will prevent incorrect wearing of the coin housing using a slider.

[0016] Moreover, when equipping with a coin housing, a maintenance means holds the open position of a shutter and it is made to equip with coin acceptance

opening in the state of open. On the other hand, at the time of the slide of the balking direction, a maintenance discharge means carries out maintenance discharge of the open position of a shutter, coin acceptance opening is closed-operated, and it secedes from a coin housing from the body of equipment by this closed state.

[0017] Moreover, when equipping with a coin housing, corresponding to a location regulation means, location regulation of the regulation means of a coin housing is carried out at the time of slide migration of this wearing direction.

[0018] Moreover, when making slide actuation carry out in the direction of a cash drawer and seceding from a coin housing from the body of equipment, this slide actuation is interlocked with, and a closing means closes a shutter and closes coin acceptance opening.

[0019] Moreover, location regulation is carried out corresponding to the closing means which pulled out the coin housing a little and with which the regulation means of a coin housing has the 2nd location regulation means even if it is going to pull out and is going to carry out wearing actuation more nearly again than a condition.

[0020]

[Effect of the Invention] Thus, if the shutter is not opened, for the structure with which the body of equipment cannot be equipped, only when coin acceptance

opening is in the condition which carried out opening, it will be equipped with a coin housing, and when closed down, it will carry out wearing regulation. For this reason, incorrect wearing of a coin housing is completely cancelable. Moreover, since coin acceptance opening carries out opening correspondence and contains the coin from the body of equipment certainly, the always stabilized storable ability can be obtained, and after the completion of wearing can cancel generating of failure by the shutter close, and can mitigate the improvement in attachment-and-detachment dependability, and the actuation burden of official-in-charge actuation.

[0021] Moreover, the plurality of a coin housing is carried on a slider, and since the body of equipment cannot be equipped if opening of the coin acceptance opening is carried out and it is not similarly carried on a slider also when carrying out attachment-and-detachment actuation collectively, wearing in the closing condition can be prevented.

[0022] Furthermore, at the time of wearing of a coin housing or a slider, in order to carry out opening maintenance of the coin acceptance opening and to close coin acceptance opening automatically conversely at the time of balking, it is to the condition of having been closed down and crime prevention management of the coin housing which the time of wearing or after wearing do not carry out closing actuation at a contingency, and is dealt with in the independent condition

of having broken away is carried out.

[0023] Thus, in order to be able to check the switching condition of coin acceptance opening mechanically at the time of wearing of a coin housing and to carry out wearing permission / wearing regulation based on this check result, even if the slide direction of a coin housing differs from the closing motion direction of a shutter, closing motion management can be carried out exactly and it can equip with coin acceptance opening.

[0024] Moreover, when [with which it reequipped] returning after pulling out a coin housing a little in order for this to be interlocked with and to close coin acceptance opening for every cash drawer of a coin housing, in order to close a shutter immediately in the pulled-out phase and to regulate re-wearing actuation, it is lost that coin acceptance opening is closed by the contingency at the time of wearing.

[0025]

[Example] One example of this invention is explained in full detail based on a drawing below. Drawing 1 and drawing 2 show the coin cartridge 12 detached and attached by the automatic ticket vending machine 11. This coin cartridge 12 is what carries four of for example, a denomination exception on a slider 13, and carries out receipts-and-payments actuation, and detach and attach at a slide ceremony from the tooth-back side of an automatic ticket vending machine 11. A

reception beam coin is received and processed with the internal coin processor 14 at the time of auto-ticket vending, and it constitutes so that the coin which should be collected at this time may be emitted from the coin processor 14 and it may contain to each coin cartridge 12 -- corresponding to a denomination exception.

[0026] Drawing 3 - drawing 6 show the coin cartridge 12, this coin cartridge 12 is formed in the shape of [oblong] a cube type, has the coin acceptance opening 16 which can be opened and closed with a shutter 15 in a top face, and acceptance and this received coin incorporate the coin emitted from the upper coin processor 14 through this coin acceptance opening 16 to the coin stowage 17 of that inner direction space section, and it is contained. Moreover, the contained coin is formed possible [the package emission to the method of outside] from the coin emission opening 19 which carries out opening at the time of disconnection of the emission door 18 arranged in one side face of the direction of a cartridge short hand.

[0027] By the way, when an automatic ticket vending machine 11 is equipped with the coin cartridge 12, in order to carry out fall emission from the upper coin processor 14 at the downward coin cartridge 12 and to make a coin contain, in the state of wearing, opening of the coin acceptance opening 16 of this coin cartridge 12 is carried out, and closing motion management is carried out so that

it may be closed down in the state of balking.

[0028] The coin receipt structure which carries out closing motion management constitutes this coin acceptance opening 16 combining the shutter maintenance device 20, the shutter maintenance discharge device 21, the slider regulation device 22, and the slider discharge device 23.

[0029] First, the hook plate 24 fixed to the rear face of a shutter 15 as the shutter maintenance device 20 was shown in drawing 7 - drawing 9 , It has the 1st tilt lever 26 arranged in the cartridge body 25 side corresponding to this. When a shutter 15 slides and it moves to an open position, it is what the 1st tilt lever 26 carries out engagement correspondence at the hook plate 24 of this and one, and holds the open condition of the coin acceptance opening 16. This 1st tilt lever 26 pivots lever pars intermedia in the pivotable support pin 27 of the cartridge body 25, and is carrying out tilt permission of the piece 28 of engagement standing up by the side of a lever tip, and the piece 29 of ***** by the side of a lever end face for this pivotable support pin 27 at the tilt supporting point. Usually, according to a return operation of the return spring 30 which attached this lever 26 in the pivotable support pin 27, in the state of this initial standby, this lever 26 is made to stand by to the initial valve position which met in the shutter closing motion direction, and when slide migration of the shutter 15 is carried out in the open direction, as it is shown in drawing 8 , the hook plate 24

carries out engagement correspondence to the piece 28 of engagement standing up by the side of a lever tip, and a shutter 15 is held in an open position. Moreover, engagement correspondence is carried out at the 2nd tilt lever of the shutter maintenance discharge device 21 which the piece 29 of ***** by the side of a lever end face mentions later, and maintenance discharge is made.

[0030] The above-mentioned shutter maintenance discharge device 21 The 2nd tilt lever 31 and the discharge guide plate 32, Consist of shutter return springs 33 and the 2nd tilt lever 31 pivots the lever end face section in the pivotable support pin 27 mentioned already. According to a return operation of the return spring 30 which carried out tilt permission of the lever tip side at the tilt supporting point, and usually attached this pivotable support pin 27 in the pivotable support pin 27 When this lever 31 is made to stand by to the initial valve position which is parallel to the 1st tilt lever 26 and slide migration of the coin cartridge 12 is carried out in the wearing direction in the state of this standby, the tip of this lever 31 carries out contact correspondence, and tilt is carried out to the discharge guide plate 32 by which fixed installation was carried out in the location corresponding to wearing of an automatic ticket vending machine 11.

[0031] As shown in drawing 8 , even if the 2nd tilt lever 31 of the coin cartridge 12 carries out contact correspondence at the discharge guide plate 32 of an automatic ticket vending machine 11 at this time, tilt evacuation of the pivotable

support pin 27 is carried out at the tilt supporting point at the time of slide migration of the wearing direction, it holds the engagement condition of the hook plate 24 and the 1st tilt lever 26, and makes it equip with the coin acceptance opening 16 in the state of open.

[0032] As shown in drawing 9 , on the other hand, at the time of slide migration of the balking direction If the 2nd tilt lever 31 carries out contact correspondence at the discharge guide plate 32, will carry out tilt evacuation of the pivotable support pin 27 at the tilt supporting point, and slide permission will be carried out. Engagement correspondence is carried out with the 1st tilt lever 26 through the piece 29 of ***** which the end face side of this lever 31 mentioned already at the time of this tilt. Tilt of the 1st tilt lever 26 is carried out by this, it secedes from the 1st tilt lever 26 from the hook plate 24, and a shutter 15 closes the coin acceptance opening 16 in response to a return operation of the shutter return spring 33 with this balking actuation. Moreover, the correspondence roller 34 for acquiring a smooth engagement operation is attached in the point of the 2nd tilt lever 31.

[0033] As shown in drawing 10 - drawing 12 , when four coin cartridge 12 -- of a denomination exception is carried in a slider 13, the slider regulation device 22 attaches stopper lever 35 -- in the slider 13 of each location corresponding to an inferior surface of tongue of the helicopter loading site, arranges the piece 36 of

the 1st stopper, and the piece 37 of the 2nd stopper in the stowed position of the automatic ticket vending machine 11 which carries out stop correspondence with these stopper lever 35 --, and is constituted.

[0034] The above-mentioned stopper lever 35 pivots the pars intermedia of this lever 35 in the supporting-point pin 38 supported to revolve at the path of insertion and right angle of a slider 13. This pivotable support pin 38 at the tilt supporting point The engagement heights 39 by the side of a lever tip, Tilt permission of the stop crevice 40 by the side of the lever back end is carried out in one, and the engagement heights 39 upper-***** with the spring for stoppers which is not usually illustrated, and it is standing by in the condition that the stop crevice 40 carried out the downward moving inclination. It is this lever 35 to this piece 36 of the 1st stopper arranged in the after [bottom presence] location of the slider stowed position 41 in the state of the inclination, and the piece 37 of the 2nd stopper. -- The stop crevice 40 carries out stop correspondence, and slider migration of the wearing direction is regulated.

[0035] The guide plate 42 which, on the other hand, fixed the slider discharge device 23 to the rear face of a shutter 15, It consists of this and a rise-and-fall lever 43 arranged in the corresponding cartridge body 25 side. When a shutter 15 carries out slide migration in an open position, corresponding to this and the top tread roller 44 which the guide plate 42 of one attached in the upper part of

the rise-and-fall lever 43, it depresses a little. The lower limit bending section 45 of this depressed rise-and-fall lever 43 will depress the engagement heights 39 of the stopper lever 35 mentioned already. With this depression actuation, the stopper lever 35 is held at an abbreviation level condition, and serves as an upward moving position where stop evasion of the stop crevice 40 of a lever 35 was carried out with each pieces 36 and 37 of a stopper at this time.

[0036] Thus, when a regulation operation of the slider regulation device 22 works in the state of closing, a shutter 15 regulates wearing actuation of a slider 13, open actuation of the shutter 15 is carried out to this and the coin acceptance opening 16 changes into an open condition, it interlocks to this, and a discharge operation of the slider discharge device 23 works, and wearing permission of the slider 13 is carried out at an automatic ticket vending machine 11.

[0037] Moreover, the stopper engine performance at the time of coin cartridge wearing regulation is raised by forming not only the piece 36 of the 1st stopper but the piece 37 of the 2nd stopper in the slider stowed position 41. A shutter 15 is immediately closed in the phase pulled out a little when [with which it reequipped] returning after pulling out the coin cartridge 12 a little in order that this may be interlocked with this cash-drawer actuation for every cash drawer of the coin cartridge 12 and a shutter 15 may close the coin acceptance opening 16, and when it is at the unsuitable two-step cash-drawer actuation time,

corresponding to the piece 37 of the 2nd stopper, slide regulation of the stopper lever 35 is carried out. For 46, as for fixed Toride and 48, rotation Toride and 47 are [a door opening close key and 49] emission guide plates among drawing.

[0038] Thus, attachment-and-detachment actuation of the constituted coin cartridge 12 is explained below. When an official in charge equips an automatic ticket vending machine 11 with coin cartridge 12 -- of a denomination exception, now, a slider 13 is pulled out, and on this pulled-out slider 13, four coin cartridge 12 -- is carried, and it continues from an automatic ticket vending machine 11, first, and is each cartridge 12. -- Open actuation of the shutter 15 is carried out, and opening of the coin acceptance opening 16 is carried out.

[0039] Wearing actuation of the slider 13 is carried out in the state of this opening at an automatic ticket vending machine 11. At this time, it is each coin cartridge 12. -- If the coin acceptance opening 16 is opening all, the slider discharge device 23 cancels slide regulation actuation of the slider regulation device 22, and permits slide migration of the wearing direction.

[0040] While the official in charge had closed the coin acceptance opening 16 by the operation mistake [having closed the coin acceptance opening 16] temporarily at this time, when ***** actuation is carried out, in order that the slider discharge device 23 may not cancel slide regulation actuation of the slider regulation device 22, wearing actuation is regulated, and it is the coin cartridge

12. -- Incorrect wearing is prevented.

[0041] On the other hand, since the coin acceptance opening 16 is in an opening condition at the time of a cash drawer and a slider regulation operation of the slider regulation device 22 does not work [of coin cartridge 12 --], the drawer of each coin cartridge 12 -- is carried out the whole slider 13, and it can carry out drawing permission smoothly [always].

[0042] As mentioned above, if the shutter is not opened, for the structure with which an automatic ticket vending machine cannot be equipped, only when coin acceptance opening is the coin receipt permissive condition which carried out opening, it will be equipped with a coin cartridge, and when closed down, it will carry out wearing regulation. For this reason, incorrect wearing of a coin cartridge is completely cancelable, and since coin acceptance opening carries out opening correspondence and contains the coin from an automatic ticket vending machine certainly, the always stabilized storable ability can be obtained, and after the completion of wearing can cancel generating of failure by the shutter close, and can mitigate the improvement in attachment-and-detachment dependability, and an official's in charge actuation burden.

[0043] Moreover, four of a coin cartridge are carried on a slider, and since an automatic ticket vending machine cannot be equipped if opening of the coin acceptance opening is not carried out similarly also when carrying out

attachment-and-detachment actuation collectively, incorrect wearing at the time of closing can be prevented.

[0044] Furthermore, in order to carry out opening maintenance of the coin acceptance opening at the time of wearing and to close coin acceptance opening automatically conversely at the time of balking, crime prevention management of the coin cartridge which the time of wearing or after wearing do not carry out closing actuation at a contingency, and is dealt with in the independent condition of having broken away is carried out in the condition of having been closed down.

[0045] Thus, in order to be able to check the switching condition of coin acceptance opening mechanically at the time of wearing of a coin cartridge and to carry out wearing permission / wearing regulation based on this check result, even if the slide direction of a coin cartridge differs from the closing motion direction of a shutter, closing motion management can be carried out exactly and it can equip with coin acceptance opening. Moreover, when [with which it reequipped] returning after pulling out a coin cartridge a little in order for this to be interlocked with and to close coin acceptance opening for every cash drawer of a coin cartridge, in order to close a shutter immediately in the pulled-out phase and to regulate re-wearing actuation, it is lost that coin acceptance opening is closed by the contingency at the time of wearing.

[0046] In correspondence with this invention and the configuration of one above-mentioned example the body of equipment of this invention It corresponds to the automatic ticket vending machine 11 of an example. Like the following a coin housing It corresponds to the coin cartridge 12. A regulation means and a slider regulation means It corresponds to the slider regulation device 22. A discharge means It corresponds to the slider discharge device 23. A maintenance means It corresponds to the shutter maintenance device 20. A maintenance discharge means It corresponds to the shutter maintenance discharge device 21. An energization means and a closing means It corresponds to the shutter return spring 33, a location regulation means corresponds to the piece 36 of the 1st stopper, and ** corresponding to the piece 37 of the 2nd stopper in the 2nd location regulation means and this invention are not limited only to the configuration of one above-mentioned example.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The outline side elevation of the automatic ticket vending machine in which the attachment-and-detachment condition of the coin cartridge of this

invention is shown.

[Drawing 2] Rear view of the automatic ticket vending machine equipped with the coin cartridge of this invention.

[Drawing 3] The top view of the coin cartridge of this invention.

[Drawing 4] The top view showing the internal structure of the coin cartridge of this invention.

[Drawing 5] The side elevation showing the internal structure of the coin cartridge of this invention.

[Drawing 6] The front view of the coin cartridge of this invention.

[Drawing 7] the part which shows the open operating state of the shutter of this invention -- a fracture top view.

[Drawing 8] the part which shows the open maintenance condition of the shutter of this invention -- a fracture top view.

[Drawing 9] the part which shows the maintenance discharge condition of the shutter of this invention -- a fracture top view.

[Drawing 10] The top view of a slider in which four coin cartridges of this invention were carried.

[Drawing 11] The front view of the slider which carried four coin cartridges of this invention.

[Drawing 12] The important section expansion side elevation showing the busy

condition of the slider regulation device of this invention.

[Drawing 13] The perspective view showing an example of the wearing structure of the conventional coin housing.

[Description of Notations]

11 -- Automatic ticket vending machine

12 -- Coin cartridge

13 -- Slider

14 -- Coin processor

15 -- Shutter

16 -- Coin acceptance opening

20 -- Shutter maintenance device

21 -- Shutter maintenance discharge device

22 -- Slider regulation device

23 -- Slider discharge device

33 -- Shutter return spring

36 -- The piece of the 1st stopper

37 -- The piece of the 2nd stopper